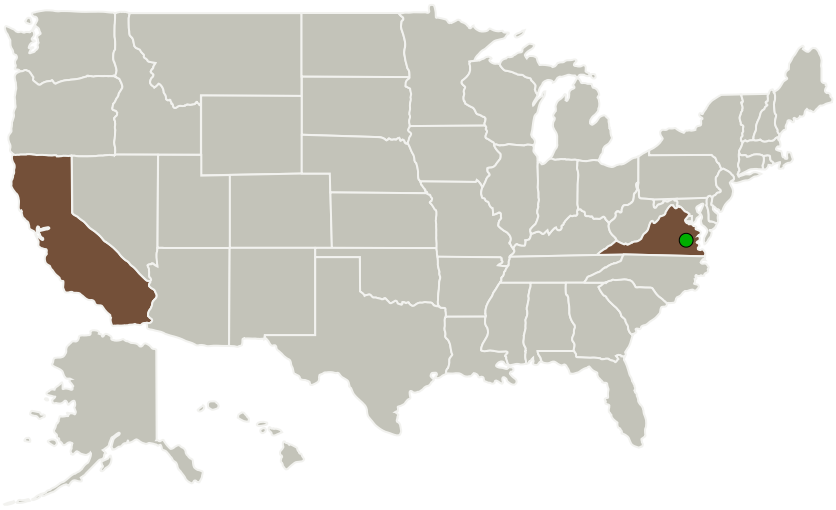
3D Flash LIDARAll Weathr Safety, Phase I

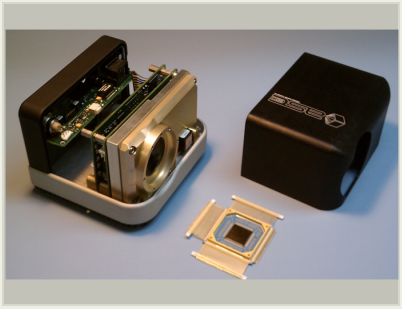
Completed Technology Project (2015 - 2015)

Project Introduction

ASC has developed non-scanning 3D Flash LIDARTM imagers for UAS situational awareness and autonomous landing. This sensing technology is the most advanced LIDAR technology available for UAV guidance and landing site determination. ASC's array technology has allowed for compact LIDAR cameras that collect full frame 3D point clouds in a single FLASH (Flash LIDAR). The 3D days will improve the mobility, efficiency and safety of air transportation systems. ASC's Flash LIDAR is the LIDAR in the Autonomous Landing and Hazard Avoidance Technology (ALHAT) for Morpheus. The 3D Flash LIDAR captured the 3D data used in landing site selection and hazard avoidance during the Morpheus autonomous landing demonstrations. ASC will use a miniaturized version, of the core 3D Flash LIDAR technology used for ALHAT, to develop an autonomous landing and hazard avoidance sensor for UAVs operating in national airspace. The sensor will be capable of a number of autonomous navigation functions, but the Phase I effort will focus on demonstrating unique functions of the sensor. The first demonstration will address safe Unmanned Aerial Vehicle (UAV) operation in the first and last 50 ft under diverse weather conditions.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Advanced Scientific Concepts, Inc.	Lead Organization	Industry	Goleta, California
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Transitions

June 2015: Project Start

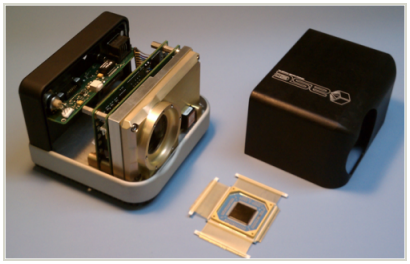
December 2015: Closed out

Closeout Summary: 3D Flash LIDARAll Weathr Safety, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/138713)*

Images



Briefing Chart Image
3D Flash LIDARAll Weathr Safety, Phase I
(https://techport.nasa.gov/image/128183)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Advanced Scientific Concepts, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

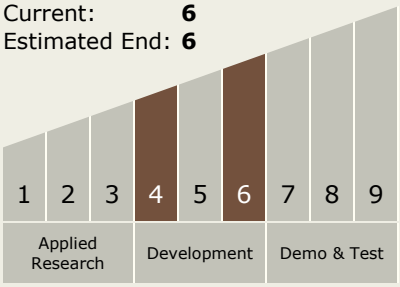
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Brad Short

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System